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FS-UNEP Collaborating Centre
for Climate & Sustainable Energy Finance

GLOBAL TRENDS IN RENEWABLE ENERGY INVESTMENT 2020

UN environment programme

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FOREWORD FROM INGER ANDERSEN, NILS STIEGLITZ AND JON MOORE

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It is nothing new to say that clean energy is better for the planet, and humanity, than energy derived from fossil fuels. Its benefits in avoiding greenhouse gas emissions, delivering cleaner air and bringing energy to marginalized communities are essential to a better future for all. What is new is that the world has a unique opportunity to accelerate clean development by putting renewable energy at the heart of Covid-19 economic recovery plans.

Governments will inject huge amounts of money into their economies as they look to bounce back from Covid-19 lockdowns, which have saved lives but stopped growth and cost jobs. This new report, *Global Trends in Renewable Energy Investment 2020*, shows that putting these dollars into renewables will buy more generation capacity than ever before, and help governments deliver stronger climate action under the Paris Agreement.

The report shows that renewable energy capacity, excluding large hydro, grew by a record 184 gigawatts (GW) in 2019. This was 20GW, or 12%, more than new capacity added in 2018. Yet the 2019 dollar investment was only 1% higher, at $282.2 billion. Meanwhile, the all-in cost of electricity continues to fall for wind and solar, thanks to technology improvements, economies of scale and fierce competition in auctions. Costs for electricity from new solar photovoltaic plants in the second half of 2019 were 83% lower than a decade earlier.

This is great progress, but there is room to do much more. Nations and corporations have made clean energy commitments over the next decade. Analyzing them in its focus chapter, the report finds commitments for 826GW of new non-hydro renewable power capacity by 2030, at a likely cost of around $1 trillion. However, these commitments fall far short of what is needed to limit the rise in global temperatures to less than 2 degrees Celsius under the Paris Agreement. It also falls short of last decade's achievements, which brought around 1,200GW of new capacity for $2.7 trillion.

This lack of ambition can be rectified in economic recovery packages. Simply repeating the investment of the last decade over the next would buy far more clean energy than it did before. The slump in the fossil fuel sector due to Covid-19, combined with the resilience clean energy has shown during this period, made it clear that clean energy is a smart investment.

If governments take advantage of the ever-falling price tag of renewables to put clean energy at the heart of Covid-19 economic recovery, instead of subsidizing the recovery of fossil-fuel industries, they can take a big step towards clean energy and a healthy natural world – which ultimately is the best insurance policy against global pandemics.

"The chorus of voices calling on governments to use their Covid-19 recovery packages to create sustainable economies is growing. This research shows that renewable energy is one of the smartest, most cost-effective investments they can make in these packages.

"If governments take advantage of the ever-falling price tag of renewables to put clean energy at the heart of Covid-19 economic recovery, they can take a big step towards a healthy natural world, which is the best insurance policy against global pandemics."

Inger Andersen, Executive Director of the UN Environment Programme

"Renewables such as wind and solar power already account for almost 80% of newly built capacity for electricity generation. Investors and markets are convinced of their reliability and competitiveness.

"The promotion of renewables can be a powerful engine for the recovery of the economy after the Coronavirus crisis, creating new and secure jobs. At the same time, renewables improve air quality thus protecting public health. By promoting renewable energies within the framework of Coronavirus economic stimulus packages, we have the opportunity to invest in future prosperity, health and climate protection."

Svenja Schulze, Minister of the Environment,
Nature Conservation and Nuclear Safety, Germany

"We see the energy transition is in full swing, with the highest capacity of renewables financed ever. Meanwhile, the fossil fuel sector has been hit hard by the Covid-19 crisis – with demand for coal- and gas-fired electricity down in many countries, and oil prices slumping.

"The climate and Covid-19 crises – despite their different natures – are both disruptions that command attention from policy makers and managers alike. Both crises demonstrate the need to increase climate ambition and shift the world's energy supply towards renewables."

Nils Stieglitz, President of Frankfurt School of Finance & Management

"Clean energy finds itself at a crossroads in 2020. The last decade produced huge progress, but official targets for 2030 are far short of what is required to address climate change. When the current crisis eases, governments will need to strengthen their ambitions not just on renewable power, but also on the decarbonization of transport, buildings and industry."

Jon Moore, Chief Executive of BloombergNEF

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METHODOLOGY AND DEFINITIONS

All figures in this report, unless otherwise credited, come from BloombergNEF, or BNEF, which maintains the world's most comprehensive database of investors, projects and transactions in clean energy.

The BloombergNEF database at www.bnef.com collates all organizations, projects and investments according to transaction type, sector, geography and timing. It covers many tens of thousands of organizations (including start-ups, corporate entities, venture capital and private equity providers, banks and other investors), projects and transactions.

METHODOLOGY

The BNEF database seeks to cover the following types of asset: all solar, biomass and waste-to-energy, geothermal, and wind generation projects of more than 1MW; all hydropower projects of between 1MW and 50MW; all wave and tidal energy projects; all biofuel projects with a capacity of one million litres or more per year.

Where deal values are not disclosed, BNEF assigns an estimated value based on comparable transactions. Deal values are rigorously back-checked and updated when further information is released about particular companies and projects. The statistics used are historical figures, based on confirmed and disclosed investment.

Annual investment is estimated for small-scale commercial and residential projects such as rooftop solar. These figures, referred to in the investment charts of the report as 'small distributed capacity', are based on annual installation data provided by industry associations and governments.

This report does not cover larger hydro-electric dams of more than 50MW, except for brief mentions in Chapters 1 and 2.

The BNEF database also covers all deals in the following categories: equity raising by specialist renewable energy companies from venture capital and private funds and public market investors; all acquisitions of specialist renewable energy companies or strategic stakes in those; and all acquisitions and refinancings of renewable energy projects and assets.

Figures on research and development by specialist renewable energy companies are collated annually from the Bloomberg Terminal and other sources. Those on government R&D are estimated annually using a variety of official and third-party sources.

All of this is a dynamic process: as the sector's visibility grows, information flow improves, new deals come to light and existing data are refined, meaning that historical figures are constantly updated.

This 2020 report contains revisions to a number of investment figures published in the 2019 edition of Global Trends in Renewable Energy Investment. Revisions reflect improvements made by BloombergNEF to its data during the course of the last 12 months, and also new transactions in 2018 and before that have since come to light.

DEFINITIONS

Investment categories in this report are defined as follows:

Capacity investment: all money invested in renewable energy generation projects, large or small. It covers both **asset finance** of utility-scale projects, whether from internal company balance sheets, from loans, or from equity capital, and the financing of **small-scale solar systems** of less than 1MW. The Focus Chapter and Chapters 1 to 4 of this report concentrate entirely on capacity investment.

Total renewable energy investment: this brings together capacity investment with the R&D, VC/PE and public markets categories listed below. It also incorporates an adjustment for **re-invested equity** (generally when money raised from VC/PE or public markets is then re-invested in renewable energy assets). The adjustment prevents double-counting. Total renewable energy investment is discussed in Chapter 5.

Research and development (R&D): all money invested in early-stage renewable energy technologies and techniques, whether financed out of government budgets or from the balance sheets of specialist renewables companies. This is discussed in Chapter 6.

Venture capital and private equity (VC/PE): all money invested by venture capital and private equity funds in the equity of specialist companies developing renewable energy technology. Investment in companies setting up generating capacity through special purpose vehicles is counted in the asset financing figure. This is discussed in Chapter 6.

Public markets: all money invested in the equity of specialist publicly quoted companies developing renewable energy technology and clean power generation. This is discussed in Chapter 6.

Acquisition activity: the value of existing equity and debt purchased by new corporate buyers, in companies developing renewable energy technology, or setting up or operating renewable power and fuel projects. It includes refinancing. Acquisitions are not included in total renewable energy investment because they represent money changing hands, rather than new money coming into the sector. They are discussed in Chapter 7.

Commonly used terms in the report are defined in the Glossary after the end of Chapter 7.

REN21's annual Renewables Global Status Report (GSR) was first released in 2005. The Global Status Report is the sister publication to UNEP Global Trends in Renewable Energy Investment, and its latest edition will be released June 2020. The GSR grew out of an effort to capture comprehensively, for the first time, the full status of renewable energy worldwide. Over the years, the report has expanded in scope and depth, in parallel with tremendous advances in renewable energy markets and industries. The GSR is the industry standard on the status of renewables. The report is based on thousands of data points, hundreds of reports and other documents, and personal communications with experts from around the world.